



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,396	03/04/2002	Steven M. Chinitz	DP-305987	1502

7590                    08/08/2003

Scott A. McBain  
Delphi Technologies, Inc.  
Mail Code: 480-414-420  
P.O. Box 5052  
Troy, MI 48007-5052

[REDACTED] EXAMINER

DAVIS, OCTAVIA L

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

2855

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>'Offic Action Summary'</b>	Applicati n No.	Applicant(s)
	10/091,396	CHINITZ ET AL. <i>NC</i>
	Examiner	Art Unit
	Octavia Davis	2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 18 June 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-21 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Pri ority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 6, 8 – 15 and 17 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbottle et al in view of Binder.

Regarding claims 1, 2, 4, 11, 15, 19 and 21, Harbottle et al disclose a bearing adjustment using a force sensor comprising a bearing assembly A including a non-rotatable section 36, a rotatable section 34, an inboard bearing seal 6, and an outboard bearing seal 8 and a force sensor 52 disposed between the seals (See Cols. 2 and 3, lines 51 – 60 and 11 – 50) but does not disclose the sensor having an output used for determining a component of a force applied to the rotatable section. However, Binder discloses an antifriction bearing including microsensors comprising a microsensor 6 that measures forces, accelerations and rotational speeds of the wheel bearing, the data from the microsensor output being compared with previously stored data (See Col. 5, lines 51 – 64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Harbottle et al according to the teachings of Binder for the purpose of, inputting data from a sensor to a central vehicle control system responsible for controlling the anti-lock or ABS braking system or the anti-skid system (See Binder, Col. 2, lines 14 – 27).

Regarding claim 3, Harbottle et al lack the output being used for determining three mutually orthogonal components of force. However, in Binder, the forces acting on microbending beam 8 are shown as radial, lateral and tangential forces (See Col. 6, lines 62 – 64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Harbottle et al according to the teachings of Binder for the purpose of, providing microcomponents with a sensor system that are produced cost effectively and that can be used as a mass produced product in any wheel bearing of the vehicle (See Binder, Col. 2, lines 7-13).

Regarding claims 5, 8, 9 and 10, in Harbottle, the rotatable section 34 constitutes a first race, and the non-rotatable section 36 constitutes a second race, the races defining a raceway 40, the bearing including rolling elements 38 disposed in the raceway and the sensor 52 senses a passage of the rolling elements around the raceway (See Fig. 1, See Col. 5, lines 46 – 67).

Regarding claims 6, 12 and 15, in Harbottle et al, the sensor 52 measures the distance between the races 34, 36 (See Cols. 3 and 4, lines 20 – 27 and 33 – 55).

Regarding claims 13, 14, 17 and 18, in Harbottle et al, the non-rotatable race includes a hub 4 and the sensor 52 is attached to the hub (See Fig. 1).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 16, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbottle et al in view of Binder, as applied to claims 1 – 6, 8 – 15 and 17 – 19 above, and further in view of Joki et al.

Regarding claims 7, 16, 20 and 21, Harbottle et al and Binder disclose all the limitations of these claims except for a teaching that the sensor measures temperature. However, Joki et al disclose a system for monitoring the operating conditions of a bearing comprising a plurality of grooves 34 that lie behind a raceway 20 for a cup 4, each groove containing resistor-type strain sensors 38 having a variable temperature resistance, the grooves also including a temperature sensor (See Col. 2 – 4, lines 63 – 67, 11 – 17 and 53 – 63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Harbottle et al and Binder according to the teachings of Joki et al for the purpose of, counteracting the changes in resistance produced by the temperature variations in the sensor (See Joki et al, Col. 4, lines 58 – 63).

#### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1 – 21 have been considered but are moot in view of the new grounds of rejection.

6. Any inquiry concerning this communication should be directed to Examiner Octavia Davis at telephone number (703) 306 - 5896. The examiner can normally be reached on Monday - Thursdays (9:00 - 5:00), Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on (703) 305 - 4816. The fax phone number for the organization where this application or proceeding is assigned is (703) 746 - 4409.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0956.

OD/2855

July 19, 2003



EDWARD LEFKOWITZ  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800